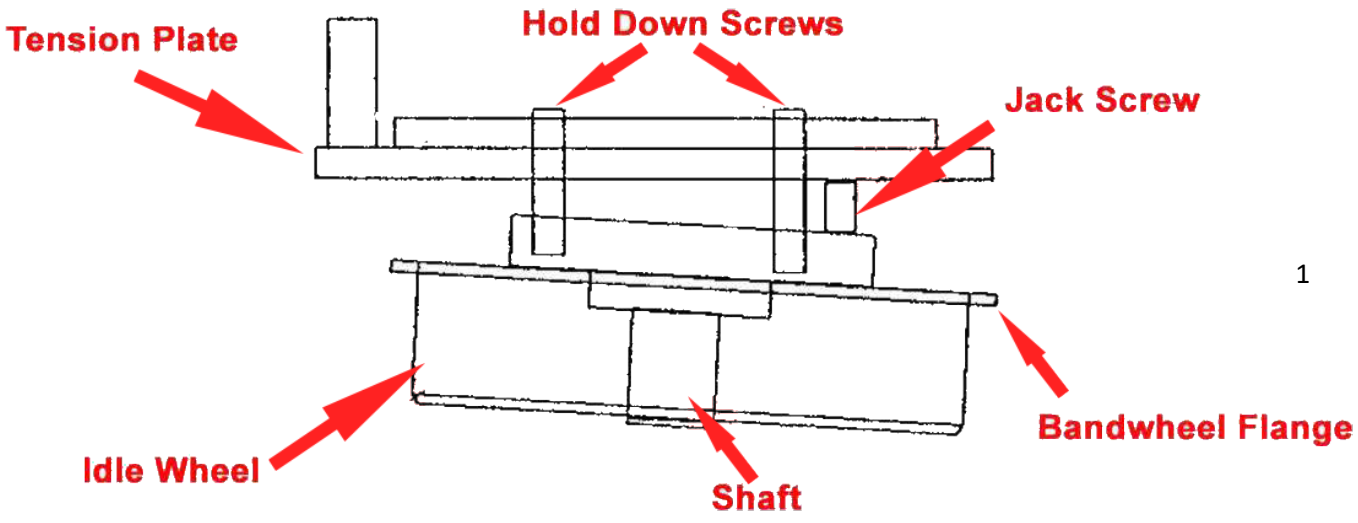
H&E® SAW

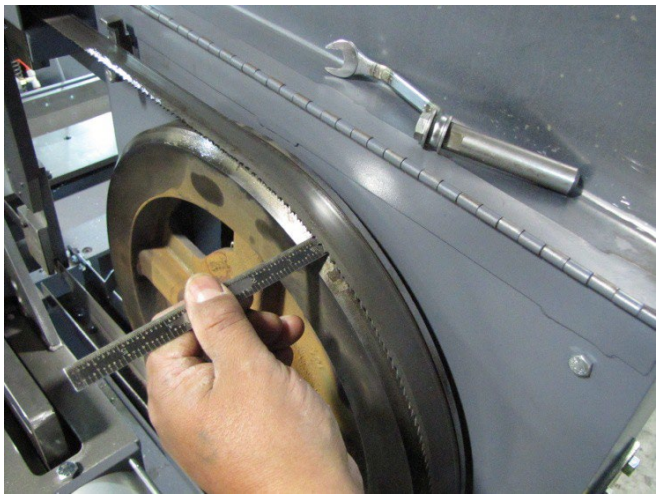
The saw that cuts straight.

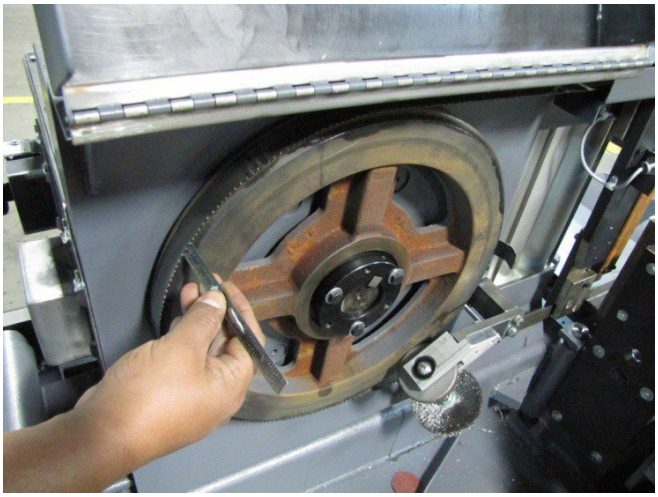
HORIZONTAL AIR SAWS BAND WHEEL ALIGNMENT



Blade Teeth Overhang Adjustment

If the teeth of the blade are riding on the blade wheel, the blade wheels need to be adjusted so that the blade teeth hang over the wheel edge. First check the tooth overhang using a scale. Although blades with deep gullets may change this specification, we usually set them to hang over the edge of the wheel by .150” to .200”



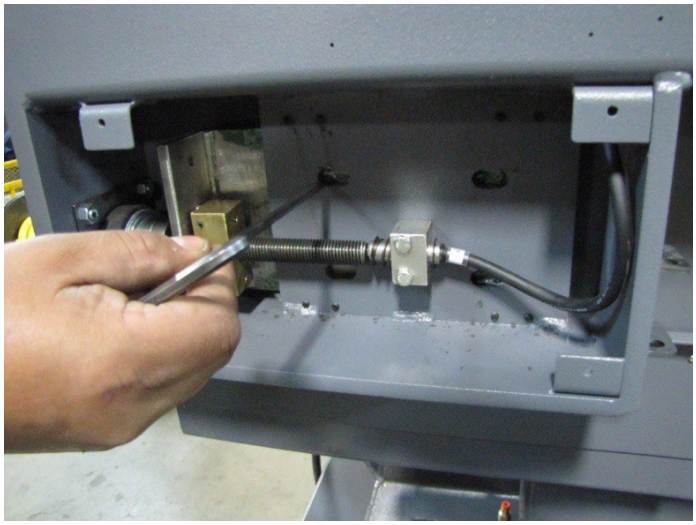


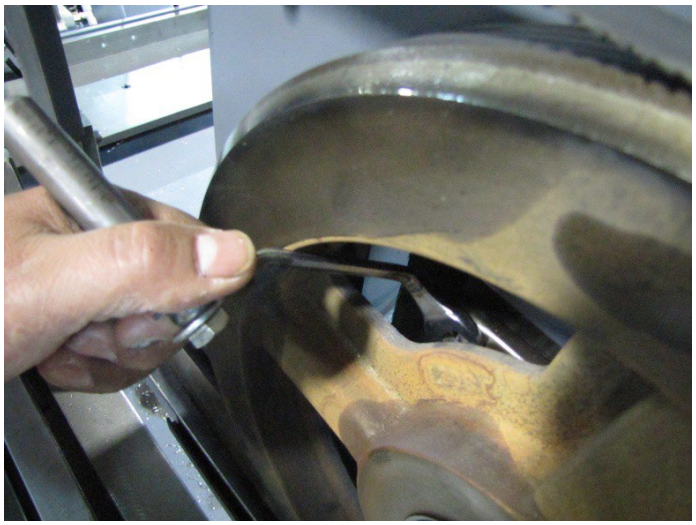
Tooth Overhang should be between .150” and .200” but blades with extra deep gullets could require more.

To adjust the band wheels for ‘Blade Teeth Overhang’, you will need to remove the inspection plate cover to expose the idle wheel adjustment plate *(see photo below left).*

Using a ‘T’ handle allen wrench, loosen the 4 allen head screws to loosen the plate that the blade wheel is bolted to. Care should be taken to loosen these allen head bolts equally and return them to their original position or the String Test may have to be performed again.

There are four bolts behind the idle wheel (we use a modified open-end wrench to access the bolts) that act as adjustment bolts. Tighten or loosen bolts as necessary to adjust the wheel in or out as required *(see photo below right).*





Loosen the allen head bolts to loosen the band wheel mounting plate. Adjust wheel using bolts behind it.

Blade Tracking

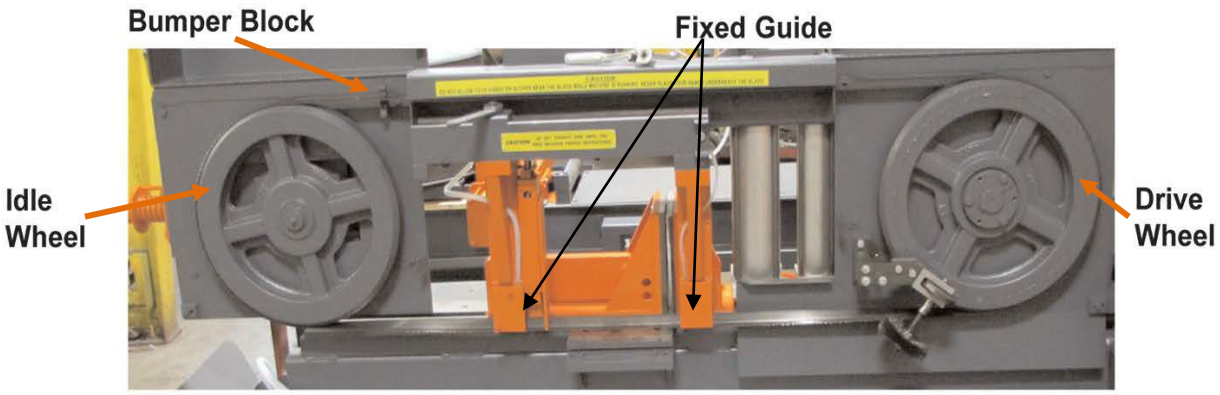
Understanding Blade Tracking

The fixed guide positions the blade on the drive wheel. Moving the guide in makes the blade track deeper on the drive wheel. The angle of the idle wheel and the thickness of the bumper block position the blade on the idle wheel. The idle wheel should be tilted just enough to cause the blade to lightly contact the bumper stock.

A properly set blade will be centered below the guides and the gullets of the blade will be just off the wheel.

Checking Blade Tracking

1. Check the position of the blade on drive and idle wheels. The blade should not touch the wheel flange but must touch the bumper block. The blade teeth must not touch the wheel.



2. Check the position of the blade relative to the guide arms.

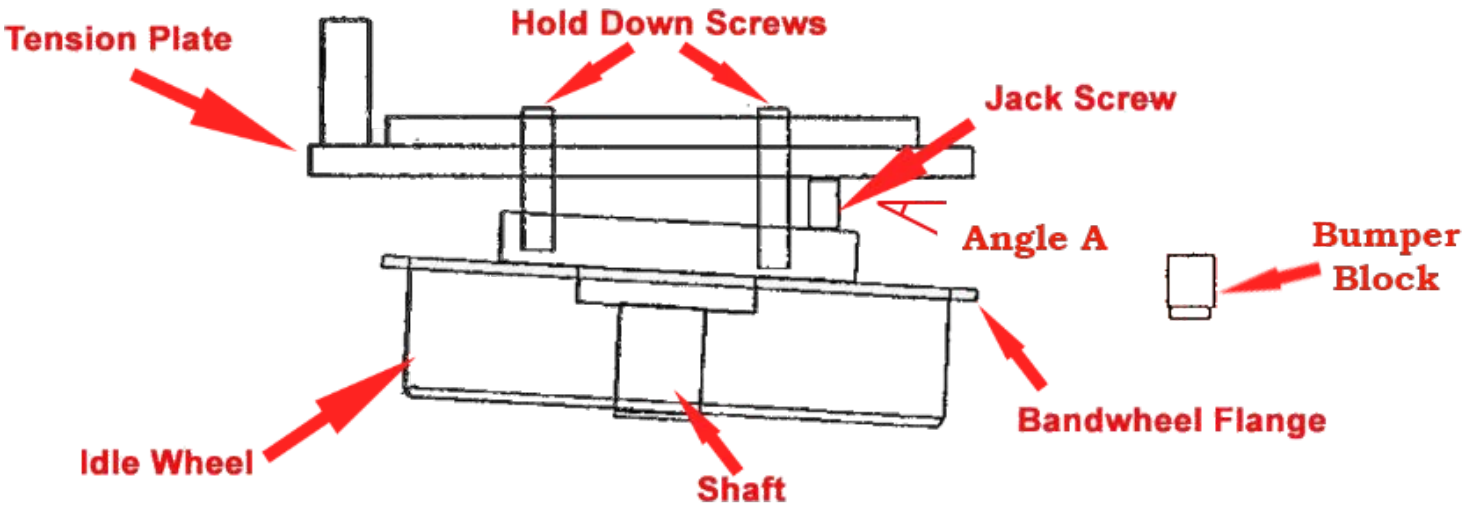
   A. Remove the blade tension by toggling the tension switch to the off position.
   B. Loosen the guide clamps or move camlocks (option) to the horizontal position.
   C. Slip blade out of guides.
   D. Re-tension the blade.

3. Check the blade position relative to the guides.
   If the blade is not tracking on the drive or idle wheels, it may be due to bearing wear or wear on the drive.

Check wheels for signs of bearing wear or wear on the wheel surfaces. If the blade is centered with the guides and is not tracking on the drive wheel properly, and there is no sign of bearing failure, the drive wheel must be repositioned.

4. If the blade is not centered through the guides but is riding on the wheels properly the guides may need to be repositioned. If the fixed guide is moved it will change the position that the blade is riding on the wheel.

5. If the blade is not riding on the block or the block shows signs of excessive wear, the idle wheel plate may need adjustment. The idle wheel plate is mounted on the tension plate and sits on an angle. The angle of the plate sets the force between the blade and the bumper block, the larger the angle the greater the force against the block. If the blade is riding against block and there are no signs of wear on the block the adjustment is probably okay.



Checking the Idle Wheel Angle

Get the saw ready for cutting (blade in the guides and properly tensioned, etc.), then use the following procedure to check the adjustment.

A. Open the Idle Wheel cover.
B. Start the band saw motor and set the speed to slow speed.
C. Observe the bumper block and check to see if the blade is riding up against the block.
D. If the blade is not riding up against the block go to Step 5.
E. If the blade is riding up against the block check the return rate of the blade.

1. While the blade is moving insert a screw driver between the saw and the blade and push the blade out away from the bumper block about ½". The blade should not push hard against the bumper.

2. Note the time needed to return to the bumper block. It should return to the bumper within one half to two turns of the idle wheel. If the blade doesn't return as stated above, the angle of the plate must be increased. If it returns to quickly the angle must be reduced.

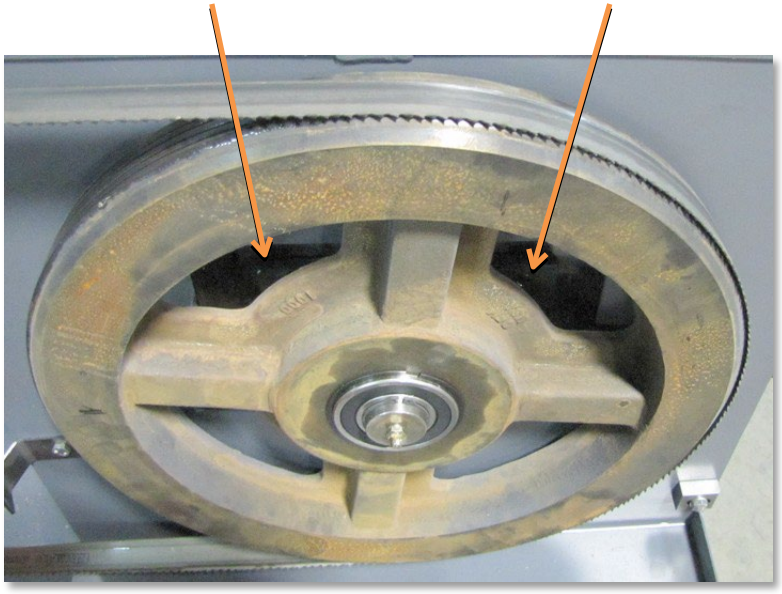
3. Adjusting the angle on the angle plate:

   A. Turn off the band motor and lock out the saw.

   B. Loosen the hold down screws (1) to allow the plate to be adjusted.

   C. Carefully insert end wrench in the area as shown below and turn both upper and lower jacking screws (located behind the drive wheel) an EQUAL amount. Do not turn these screws more than ½ a revolution at a time. Turn clockwise to increase the angle to make the blade pull into the bumper block quicker. Turn counter-clockwise to make it return more slowly. The other jacking screws on the outside end of the plate are not normally adjusted.

   D. Tighten the hold down screws and recheck the return rate of the blade.



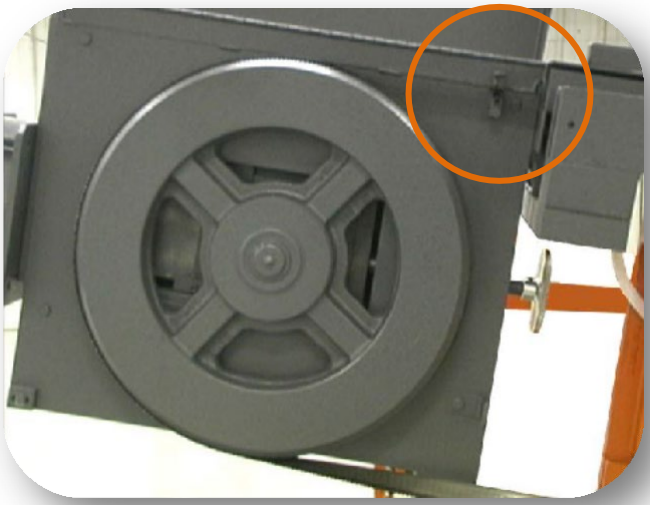
Rotate clockwise to decrease the angle and
counter-clockwise to increase the angle

Blade Tracking Issue

When there is a blade tracking problem and the blade is not running squarely on the blade wheels, it is often blade wheel wear that is causing the bad tracking.

Blade wheel realignment will only be temporary fix to the blade tracking problem if the wheel-wear condition exists and is the actual cause of the blade to tracking improperly.

Wheels tend to wear on the outside edge first, and the blade tends to ride up onto the high side of the band wheel. This can cause a condition where the blade is riding hard against the bumper block carbide. Therefore, if there appears to be excessive wear against the bumper block carbide, or the blade just seems to be pressing hard against the bumper block carbide, don't just assume it is a blade wheel alignment issue. Check for blade wheel squareness as well.

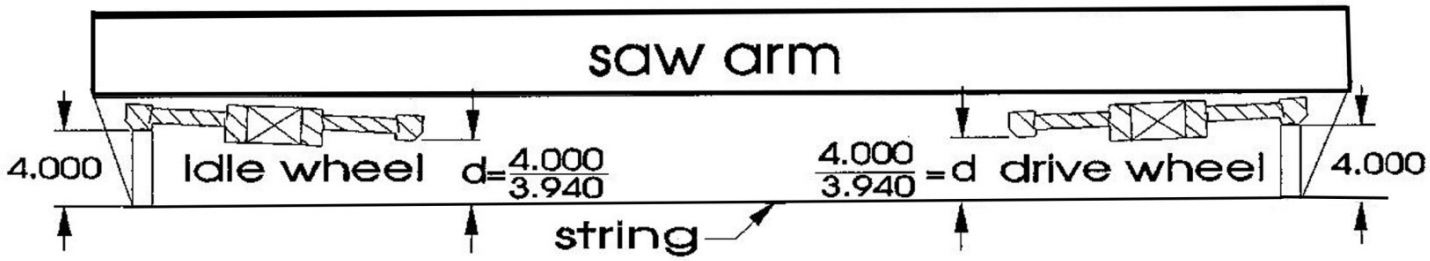


The blade should not be riding against the bumper block carbide so hard that you can't wiggle the blade up and down against the carbide with your fingers. If a groove is being worn into the carbide, blade wheel alignment *or* blade wheel wear may be the problem. Check for blade squareness before beginning a blade wheel alignment procedure. See photo below.

Use a square to check for blade wheel wear. The blade wheel should be square on the wheel edge where the blade rides relative to the side of the wheel. The blade wheels tend to wear on the outside edge first.

Wheel Alignment

1. Place an equal-length magnetic spacer on each wheel and tie a string as shown on Figure 'A' below.
2. Measure the distance between the string and the wheel, as far out as possible from the outer rim on the flat surface of each wheel.
3. The distance should be equal or smaller by 1/16" than the length of the magnetic spacer. The actual length of the magnetic spacer is not important, as long as it holds the string away from the center hub. For the example in Figure 'A', the spacer is 4".



Dimension "d" must be equal or smaller than length of spacer

Figure A

To check the alignment:

After the alignment is performed as shown above, the blade is moved out of the guides so that it is not twisted up into the guides at all. The guide caps can be tightened slightly after the blade is slipped out and the blade is then tensioned to normal operational tension. The center of the blade should be aligned with the center of the guides within +/- .090". Figure 'B' shows this alignment.

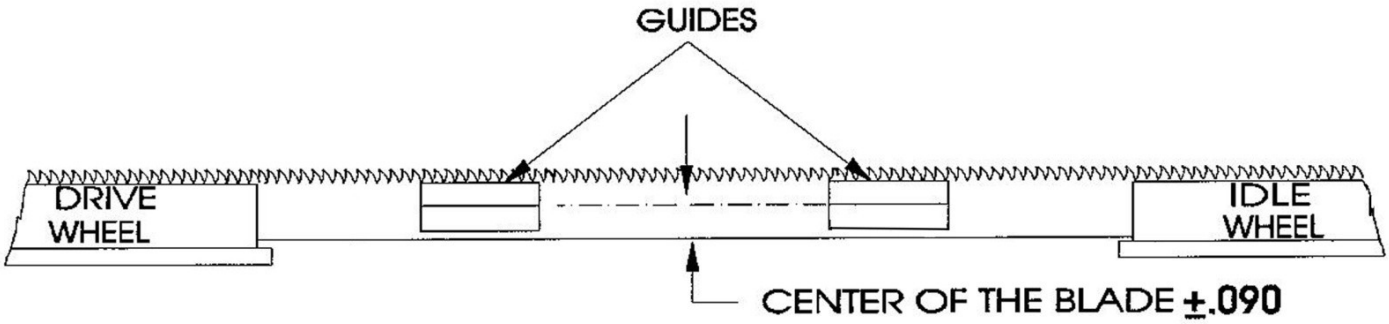
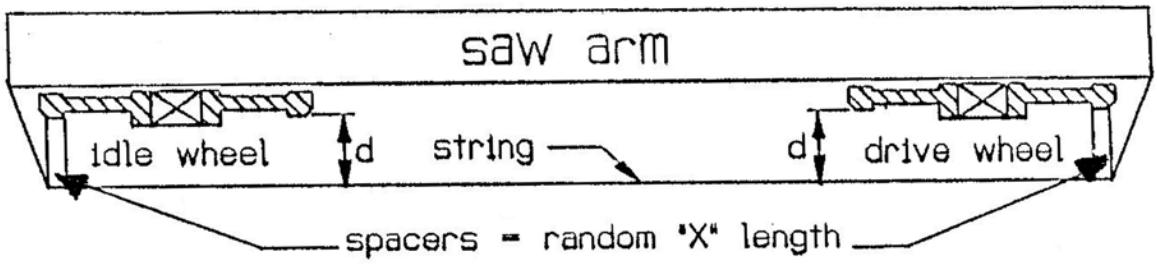


Figure B

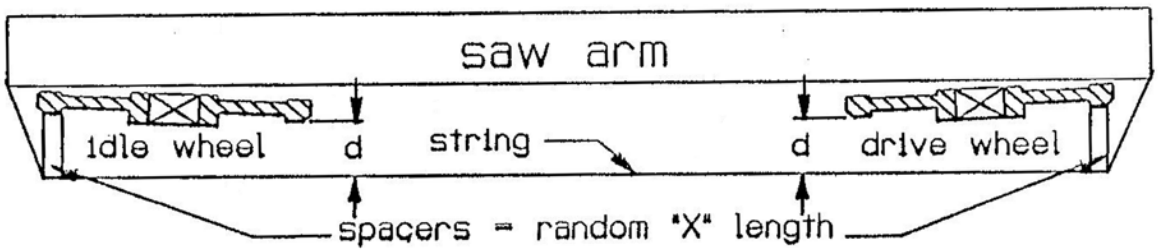
Example Alignment Diagrams

Alignment OK



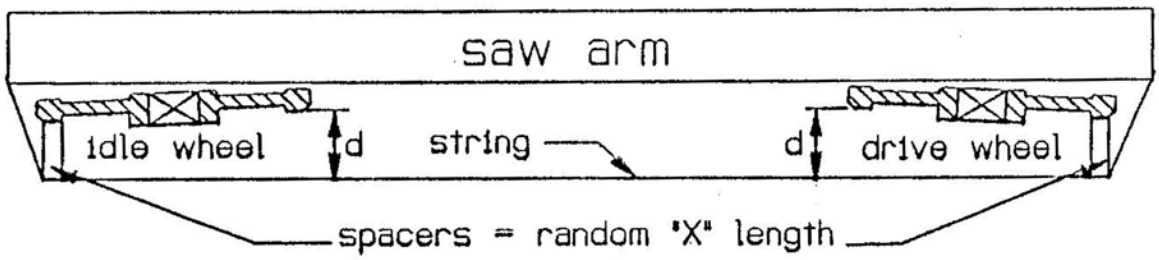
DIMENSION "d" HAS TO BE EQUAL OR LESS THAN "X" LENGTH OF SPACERS,
AMOUNT LESS DEPENDS ON WHEEL DIAMETER.

Alignment OK



DIMENSION "d" IS SMALLER THAN LENGTH "X" OF SPACER,

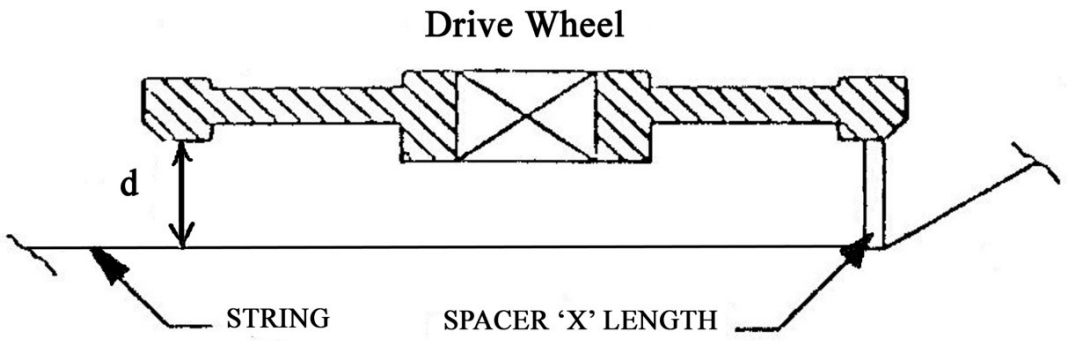
ALIGNMENT WRONG!!



DIMENSION "d" IS LARGER THAN LENGTH "X" OF SPACER,

Proper wheel alignment allows for the blade to track properly.

Wheel Alignment ‘d’ Distance Measurement Equivalents



Make the measurement ‘d’ as far as possible toward the edge of the band wheel in the flat surface of the wheel.

Wheel DIA.	Δd	Approx. Equiv.
12¾	.044"	3/64"
14½"	.050"	3/64"
16"	.056"	3/64"
18"	.063"	1/16"
18⅜"	.063"	1/16"
20"	.070"	1/16"
22"	.077"	5/64"
28"	.098"	3/32"
34"	.119"	⅛"
43"	.151"	5/32"
56"	.196"	3/16"
63"	.220"	7/32"

Δd ***is the maximum amount that measurement ‘d’ can be smaller than length X of the spacer used***

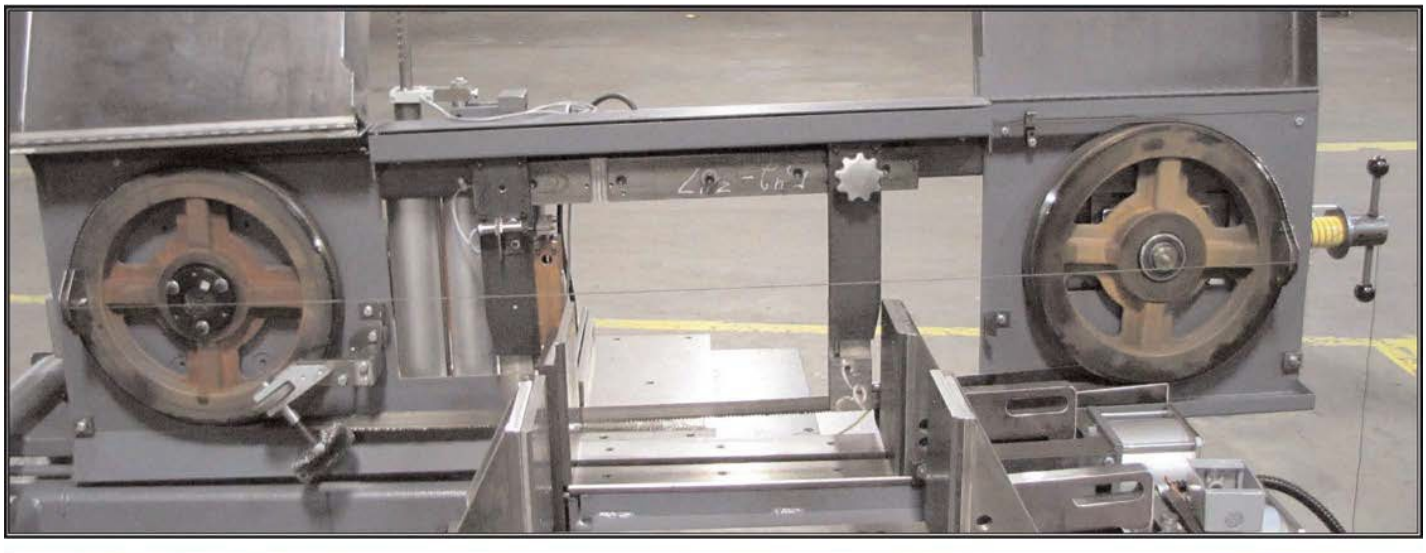
Do not set measurement ‘d’ to the numbers above. These numbers are *tolerance* that ‘d’ can be out from a 0º camber. The measurement ‘d’ should be adjusted as close to the measurement of ‘X’ as possible without being longer than X.

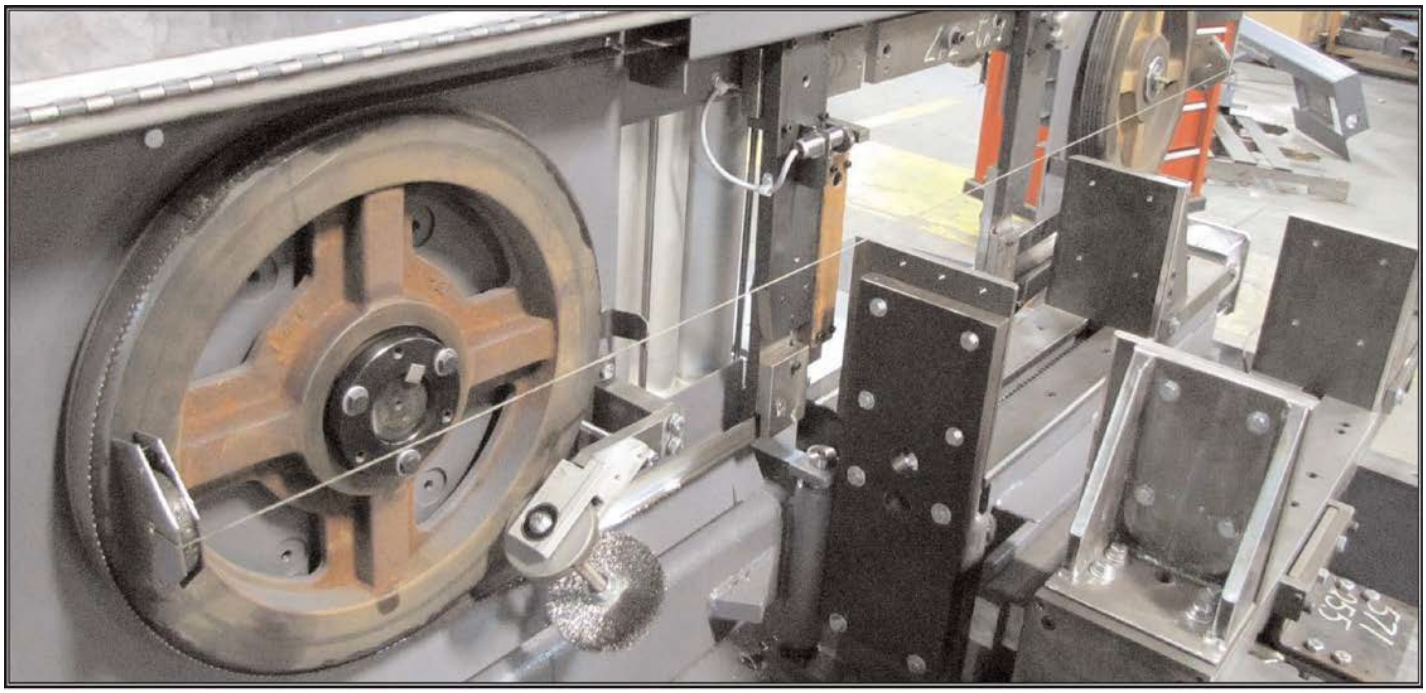
The actual measurement of ‘X’ is not important as long as it is long enough to hold the string away from the center hub.

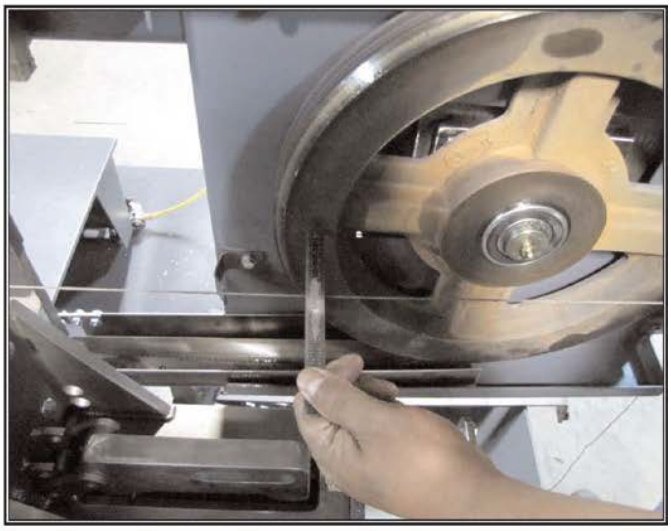
Wheel Alignment

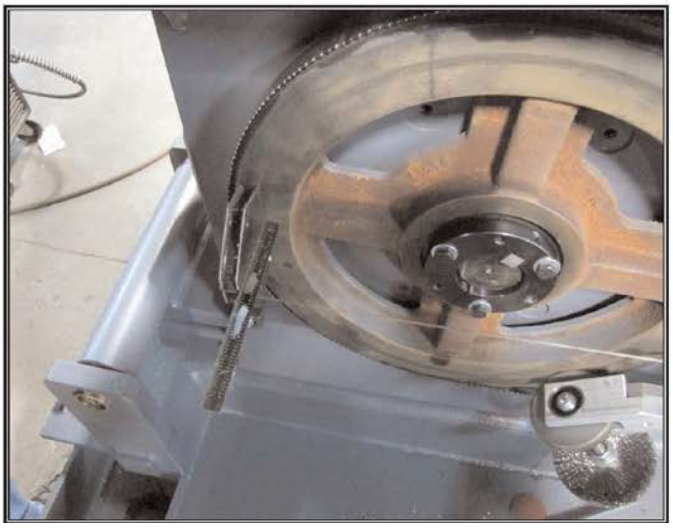
There are a couple of steps involved in aligning band wheels on a HEM saw.

The first step is to perform the "String Test" to align the wheel pitch on the idle and drive wheels. A string is tied off at the blade tensioner and run across two magnets to hold the string at a set distance off of each wheel. Using a scale, check the pitch on both sides of the wheel (the side on the outside of the arm and the side that is closest to the blade). The wheels should be flat or no more than pitched out .050". The blade tracking is achieved this way and unless the wheels are perfectly flat, the pitch should occur with the side of the wheel closest to the blade pitched in so the outside of the band wheels are pitched out to help the blade track on the wheels when it is turning. Refer to photos 1 through 7 below.









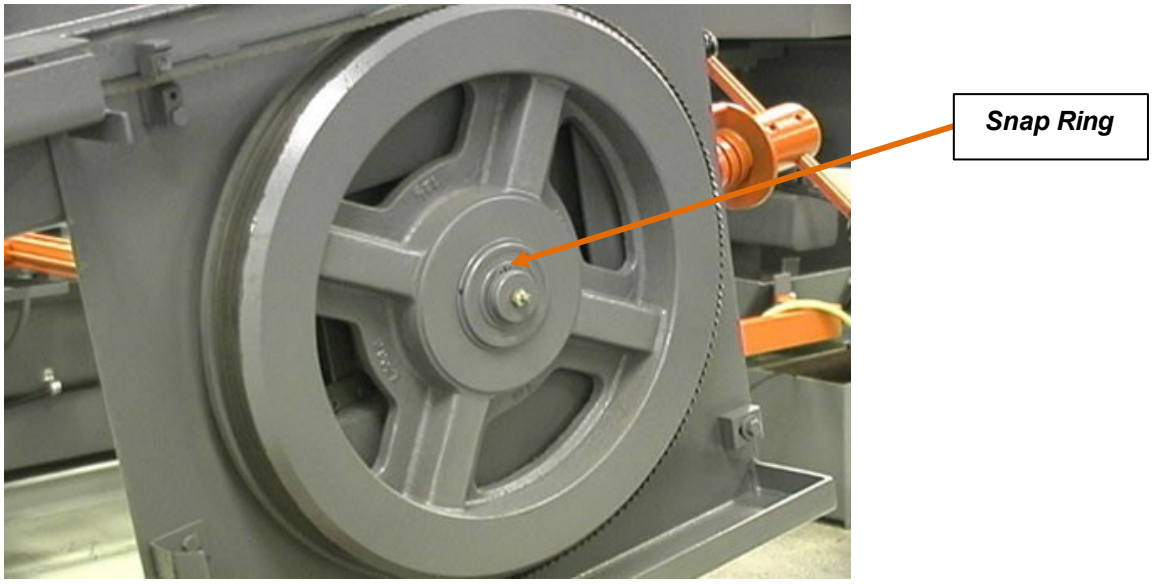
IDLE WHEEL REMOVAL AND REPLACEMENT

Removal

1. Turn Power completely off to the saw.
2. Remove the Blade (see section on Changing the Blade)
3. Remove the snap ring that retains the idle wheel.
4. Slide the wheel off the shaft.
   Caution! The idle wheel is very heavy.
5. If the bearing needs to be replaced, push it out of the wheel with a section of tubing that matches the outer race of the bearing.

Replacement

1. If new bearings are being installed, pack the bearing cavity with a good grade of bearing grease before installing.
2. Slide the wheel onto the idle wheel shaft.
   Caution! The idle wheel is very heavy.
3. Install the snap ring right onto the idle wheel shaft.
4. Install the blade (see section on Changing the Blade)



Caution! The wheel is very heavy